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SEQUENCE LISTING

<110> HEINZ, ERNST
GIRKE, THOMAS
SCHEFFLER, JODI
SILVA, OSWALDO DA COSTA E

<120> PLANTS EXPRESSING DELTA-6-DESATURASE GENES,
PUFAS-CONTAINING OILS FROM THESE PLANTS, AND A PROCESS
FOR THE PREPARATION OF UNSATURATED FATTY ACIDS

<130> 0093/000032

<140> 10/019,048
<141> 2001-12-27

<150> DE 10030976.3
<151> 2000-06-03

<150> 09/347,531
<151> 1999-07-06

<160> 13

<170> PatentIn Ver. 3.3

<210> 1
<211> 2012
<212> DNA
<213> *Physcomitrella patens*

<220>
<221> CDS
<222> (319)..(1896)

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tacctccggg ttttggagcg ggcaaactct gttgcggctc ggaaggctat aggttcggca 180
ggagactgtt gattttatgt cggggcatt gccattgtgg agagcggggg agactcagga 240
tctgtgagtg tgcgtgcagc gccccgactg ccgcagagcg tctgtgtatg acgagggtgt 300
tgtggagcgg cttttgaa atg gta ttc gcg ggc ggt gga ctt cag cag ggc 351
Met Val Phe Ala Gly Gly Gly Leu Gln Gln Gly
1 5 10

tct ctc gaa gaa aac atc gac gtc gag cac att gcc agt atg tct ctc 399
Ser Leu Glu Glu Asn Ile Asp Val Glu His Ile Ala Ser Met Ser Leu
15 20 25

ttc agc gac ttc ttc agt tat gtg tct tca act gtt ggt tcg tgg agc 447
Phe Ser Asp Phe Phe Ser Tyr Val Ser Ser Thr Val Gly Ser Trp Ser
30 35 40

gta cac agt ata caa cct ttg aag cgc ctg acg agt aag aag cgt gtt	495
Val His Ser Ile Gln Pro Leu Lys Arg Leu Thr Ser Lys Lys Arg Val	
45 50 55	
tcg gaa agc gct gcc gtg caa tgt ata tca gct gaa gtt cag aga aat	543
Ser Glu Ser Ala Ala Val Gln Cys Ile Ser Ala Glu Val Gln Arg Asn	
60 65 70 75	
tcg agt acc cag gga act gcg gag gca ctc gca gaa tca gtc gtg aag	591
Ser Ser Thr Gln Gly Thr Ala Glu Ala Leu Ala Glu Ser Val Val Lys	
80 85 90	
ccc acg aga cga agg tca tct cag tgg aag aag tcg aca cac ccc cta	639
Pro Thr Arg Arg Ser Ser Gln Trp Lys Lys Ser Thr His Pro Leu	
95 100 105	
tca gaa gta gca gta cac aac aag cca agc gat tgc tgg att gtt gta	687
Ser Glu Val Ala Val His Asn Lys Pro Ser Asp Cys Trp Ile Val Val	
110 115 120	
aaa aac aag gtg tat gat gtt tcc aat ttt gcg gac gag cat ccc gga	735
Lys Asn Lys Val Tyr Asp Val Ser Asn Phe Ala Asp Glu His Pro Gly	
125 130 135	
gga tca gtt att agt act tat ttt gga cga gac ggc aca gat gtt ttc	783
Gly Ser Val Ile Ser Thr Tyr Phe Gly Arg Asp Gly Thr Asp Val Phe	
140 145 150 155	
tct agt ttt cat gca gct tct aca tgg aaa att ctt caa gac ttt tac	831
Ser Ser Phe His Ala Ala Ser Thr Trp Lys Ile Leu Gln Asp Phe Tyr	
160 165 170	
att ggt gac gtg gag agg gtg gag ccg act cca gag ctg ctg aaa gat	879
Ile Gly Asp Val Glu Arg Val Glu Pro Thr Pro Glu Leu Leu Lys Asp	
175 180 185	
ttc cga gaa atg aga gct ctt ttc ctg agg gag caa ctt ttc aaa agt	927
Phe Arg Glu Met Arg Ala Leu Phe Leu Arg Glu Gln Leu Phe Lys Ser	
190 195 200	
tcg aaa ttg tac tat gtt atg aag ctg ctc acg aat gtt gct att ttt	975
Ser Lys Leu Tyr Tyr Val Met Lys Leu Leu Thr Asn Val Ala Ile Phe	
205 210 215	
gct gcg agc att gca ata ata tgt tgg agc aag act att tca gcg gtt	1023
Ala Ala Ser Ile Ala Ile Ile Cys Trp Ser Lys Thr Ile Ser Ala Val	
220 225 230 235	
ttg gct tca gct tgt atg atg gct ctg tgt ttc caa cag tgc gga tgg	1071
Leu Ala Ser Ala Cys Met Met Ala Leu Cys Phe Gln Gln Cys Gly Trp	
240 245 250	
cta tcc cat gat ttt ctc cac aat cag gtg ttt gag aca cgc tgg ctt	1119
Leu Ser His Asp Phe Leu His Asn Gln Val Phe Glu Thr Arg Trp Leu	
255 260 265	

aat gaa gtt gtc ggg tat gtg atc ggc aac gcc gtt ctg ggg ttt agt Asn Glu Val Val Gly Tyr Val Ile Gly Asn Ala Val Leu Gly Phe Ser 270 275 280	1167
aca ggg tgg tgg aag gag aag cat aac ctt cat cat gct gct cca aat Thr Gly Trp Trp Lys Glu Lys His Asn Leu His His Ala Ala Pro Asn 285 290 295	1215
gaa tgc gat cag act tac caa cca att gat gaa gat att gat act ctc Glu Cys Asp Gln Thr Tyr Gln Pro Ile Asp Glu Asp Ile Asp Thr Leu 300 305 310 315	1263
ccc ctc att gcc tgg agc aag gac ata ctg gcc aca gtt gag aat aag Pro Leu Ile Ala Trp Ser Lys Asp Ile Leu Ala Thr Val Glu Asn Lys 320 325 330	1311
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tct aca gca gtg ctc tca cct gtc gac agg ttg ttg gag aag gga act Ser Thr Ala Val Leu Ser Pro Val Asp Arg Leu Leu Glu Lys Gly Thr 365 370 375	1455
gtt ctg ttt cac tac ttt tgg ttc gtc ggg aca gcg tgc tat ctt ctc Val Leu Phe His Tyr Phe Trp Phe Val Gly Thr Ala Cys Tyr Leu Leu 380 385 390 395	1503
cct ggt tgg aag cca tta gta tgg atg gcg gtg act gag ctc atg tcc Pro Gly Trp Lys Pro Leu Val Trp Met Ala Val Thr Glu Leu Met Ser 400 405 410	1551
ggc atg ctg ctg ggc ttt gta ttt gta ctt agc cac aat ggg atg gag Gly Met Leu Leu Gly Phe Val Phe Val Leu Ser His Asn Gly Met Glu 415 420 425	1599
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cgg gat atc aaa gga aac ata ttc aac gac tgg ttc act ggt ggc ctt Arg Asp Ile Lys Gly Asn Ile Phe Asn Asp Trp Phe Thr Gly Gly Leu 445 450 455	1695
aac agg caa ata gag cat cat ctt ttc cca aca atg ccc agg cat aat Asn Arg Gln Ile Glu His His Leu Phe Pro Thr Met Pro Arg His Asn 460 465 470 475	1743
tta aac aaa ata gca cct aga gtg gag gtg ttc tgt aag aaa cac ggt Leu Asn Lys Ile Ala Pro Arg Val Glu Val Phe Cys Lys Lys His Gly 480 485 490	1791

ctg gtg tac gaa gac gta tct att gct acc ggc act tgc aag gtt ttg 1839
 Leu Val Tyr Glu Asp Val Ser Ile Ala Thr Gly Thr Cys Lys Val Leu
 495 500 505

aaa gca ttg aag gaa gtc gcg gag gct gcg gca gag cag cat gct acc 1887
 Lys Ala Leu Lys Glu Val Ala Glu Ala Ala Glu Gln His Ala Thr
 510 515 520

acc agt taa cagtcttgg aaagcttggc aattgatctt tattctccac 1936
 Thr Ser
 525

ggcagttgct tgtttggtt ggggtgaatg accgaatgta ctggcatcca ttcttctgta 1996

gccatcaatt ttgaac 2012

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<212> PRT
<213> Physcomitrella patens

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 20 25 30

Ser Tyr Val Ser Ser Thr Val Gly Ser Trp Ser Val His Ser Ile Gln
 35 40 45

Pro Leu Lys Arg Leu Thr Ser Lys Lys Arg Val Ser Glu Ser Ala Ala
 50 55 60

Val Gln Cys Ile Ser Ala Glu Val Gln Arg Asn Ser Ser Thr Gln Gly
 65 70 75 80

Thr Ala Glu Ala Leu Ala Glu Ser Val Val Lys Pro Thr Arg Arg Arg
 85 90 95

Ser Ser Gln Trp Lys Lys Ser Thr His Pro Leu Ser Glu Val Ala Val
 100 105 110

His Asn Lys Pro Ser Asp Cys Trp Ile Val Val Lys Asn Lys Val Tyr
 115 120 125

Asp Val Ser Asn Phe Ala Asp Glu His Pro Gly Gly Ser Val Ile Ser
 130 135 140

Thr Tyr Phe Gly Arg Asp Gly Thr Asp Val Phe Ser Ser Phe His Ala
 145 150 155 160

Ala Ser Thr Trp Lys Ile Leu Gln Asp Phe Tyr Ile Gly Asp Val Glu
 165 170 175

Arg Val Glu Pro Thr Pro Glu Leu Leu Lys Asp Phe Arg Glu Met Arg
 180 185 190

Ala Leu Phe Leu Arg Glu Gln Leu Phe Lys Ser Ser Lys Leu Tyr Tyr
 195 200 205

Val Met Lys Leu Leu Thr Asn Val Ala Ile Phe Ala Ala Ser Ile Ala
 210 215 220

Ile Ile Cys Trp Ser Lys Thr Ile Ser Ala Val Leu Ala Ser Ala Cys
 225 230 235 240

Met Met Ala Leu Cys Phe Gln Gln Cys Gly Trp Leu Ser His Asp Phe
 245 250 255

Leu His Asn Gln Val Phe Glu Thr Arg Trp Leu Asn Glu Val Val Gly
 260 265 270

Tyr Val Ile Gly Asn Ala Val Leu Gly Phe Ser Thr Gly Trp Trp Lys
 275 280 285

Glu Lys His Asn Leu His His Ala Ala Pro Asn Glu Cys Asp Gln Thr
 290 295 300

Tyr Gln Pro Ile Asp Glu Asp Ile Asp Thr Leu Pro Leu Ile Ala Trp
 305 310 315 320

Ser Lys Asp Ile Leu Ala Thr Val Glu Asn Lys Thr Phe Leu Arg Ile
 325 330 335

Leu Gln Tyr Gln His Leu Phe Phe Met Gly Leu Leu Phe Phe Ala Arg
 340 345 350

Gly Ser Trp Leu Phe Trp Ser Trp Arg Tyr Thr Ser Thr Ala Val Leu
 355 360 365

Ser Pro Val Asp Arg Leu Leu Glu Lys Gly Thr Val Leu Phe His Tyr
 370 375 380

Phe Trp Phe Val Gly Thr Ala Cys Tyr Leu Leu Pro Gly Trp Lys Pro
 385 390 395 400

Leu Val Trp Met Ala Val Thr Glu Leu Met Ser Gly Met Leu Leu Gly
 405 410 415

Phe Val Phe Val Leu Ser His Asn Gly Met Glu Val Tyr Asn Ser Ser
 420 425 430

Lys Glu Phe Val Ser Ala Gln Ile Val Ser Thr Arg Asp Ile Lys Gly
 435 440 445

Asn Ile Phe Asn Asp Trp Phe Thr Gly Gly Leu Asn Arg Gln Ile Glu
 450 455 460

His His Leu Phe Pro Thr Met Pro Arg His Asn Leu Asn Lys Ile Ala
 465 470 475 480

Pro Arg Val Glu Val Phe Cys Lys Lys His Gly Leu Val Tyr Glu Asp
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Val Ala Glu Ala Ala Ala Glu Gln His Ala Thr Thr Ser
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<210> 3
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 <213> Artificial Sequence

<220>
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 <212> DNA
 <213> Artificial Sequence

<220>
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 <223> Inosine

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 <212> DNA
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<220>
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 <221> modified_base
 <222> (6)
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<400> 5
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17

<210> 6
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<210> 8
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<212> DNA
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<210> 9
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<212> DNA
<213> Artificial Sequence

<220>
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18

<210> 10
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
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<210> 11
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<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
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<400> 11
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<210> 12
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 12
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<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 13
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